1987

Pasture variety row evaluation.

Western Australia Department of Agriculture

INTRODUCTION

This was the first year of a project funded by the Australian Wool Corporation investigating the effect of medic species, rhizobial strain and deep ripping on pasture production from deep sandy soils. As seen by the rainfall figures below, 1987 was a very dry season with especially poor finishing rains. This combined with the low potential of these sandy soils meant very low yields when compared to more favourable areas of the state.

The three trials reported in this summary were all conducted at East Chapman Research Station. All were situated on deep yellow sand typical of the Eradu Sandplain. This soil has a pH of approximately 5.6 in 1:5 water solution and a water holding capacity of around 50-70mm/m depth.

1987 RAINFALL AT EAST CHAPMAN RESEARCH STATION

MONTH	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	TOTAL
mm	16.0	19.0	15.0	17.0	48.8	29.8	41.4	5.0	16.0	19.4	227.4
DAYS	1	1	2	1	7	7	4	2	2	4	31

TRIAL TITLE: Pasture variety row evaluation.

TRIAL No. : 87GE78

DESIGN : 220 varieties (from 29 species)
Grown in 3m rows * 2 replicates

SOWING RATE: 0.5g/m

SOWING DATE: 8/6/87

RESULTS

The following table shows results for varieties which had a mean seed yield per 3m row of over 7g or over 120mg per plant. The density of plants per row varied due to differences in seed viability, however plant number had less effect on row yield than it did on yield per plant.

TABLE 1 Seed yields of 3m rows grown at E.C.R.S 1987

REFLINE	DAYS TO FLOWER	WINTER VIGOUR RATING	RELAT. APHID No.S	SEED YIELD (No/3m)	SEED YIELD (g/3m)	SEED YLD PER PLANT (mg/plnt)
**						
N3579	94	2	2	72	0.44	440
** M.LITTORALIS						
GRC5674.3	75	4	1	4588	15.59	188
SA 9790	54	4	3	6434	14.84	134
CYRENE3	69	4	1	5832	14.69	139
SA10966	63	4	1	6650	14.41	40
SA11826	53	3	2	5093	11.61	55
Z-239 F4	70	4	0	4359	9.95	53
GRC5661.1	78	2	1	4022	9.67	54
SA 5481	57	4	0	3906	9.40	42
LIB 791.5	68	4	1	3616	9.32	102
Z-139 F4	65	4	1	3343	9.23	70
L-213 F4 LM	68	3	0	3161	9.18	158
Z-244 F4	66	4	1	3210	8.39	34
Z-219 F4 NM	67	2	0	3146	8.24	46
SA 9783	58	2	1	3472	8.12	86
Z-146 F4	67	4	1	3022	7.94	62
HARBINGER	68	4	3	2754	7.66	69
Z-256 F5	82	3	1	2017	7.50	67
Z-236 F4	70	4	1	2302	7.35	53
** M.TRUNCATULA						
GRC5661.3	79	4	1	4840	19.12	158
SA 9811	52	4	1	5226	15.21	136
SA 9822	54	6	2	4033	14.59	160
GRC5675	75	6	0	3800	13.59	68
LIB1470.3	64	4	1	5190	13.48	56
SA17216	61	4	1	3821	13.11	74
PARRABINGER	69	4	1	3536	12.71	216
GRC5673.2	73	5	0	3809	12.33	73
Z-189 F5	78	4	1	2268	11.65	350
SA 9818	57	4	2	3187	11.29	174
Z-117 F6	73	3	1	3444	10.98	431
GRC5674.2	71	5	3	2724	10.60	74
Z-188 F5	77	4	1	3084	10.43	77
SA 8458	53	4	2	3410	10.41	86
SA17210	53	4	1	3579	10.28	184
PARRAGIO	80	4	0	2550	10.13	104
SA 9821	53	6	2	3109	9.70	118
Z-90 F6	80	4	1	2178	9.51	178
SA17616	74	5	3	1612	9.45	92
SA 8967	68	4	2	3236	9.37	66
Z-9 F7	77	6	1	2427	9.33	68
SA 1450	59	4	2	2688	8.70	88
Z-186 F5	70	4	1	2312	8.70	131
SA10961	57	4	2	3484	8.51	60
ZUARA5	57	4	2	2974	8.33	136
GRC5674.1	72	4	2	2328	8.07	128
SA 1522	55	4	2	2048	7.99	76
Z-120 F6	78	3	2	2783	7.87	1130
Z-129 F8	72	4	1	1906	7.25	54
GRC5672	76	4	2	2045	7.20	235
Z-265 F5	72	4	1	2128	7.10	36
Z-93 F6	80	3	1	1424	6.71	134
SA 4089	87	4	1	1815	6.21	152

REFLINE	DAYS TO FLOWER	WINTER VIGOUR RATING	RELAT. APHID No.S	SEED YIELD (No/3m)	SEED YIELD (g/3m)	SEED YLD PER PLANT (mg/plnt)
** M.TORNATA						
SA10012	80	6	1	7640	32.45	206
LIB 17.1	64	5	2	3156	17.80	310
SA11720	65	2	2	5426	13.01	37
SA11829	55	5	1	2818	12.52	112
N5067	79	3	1	2678	11.31	236
LIB 52.2	55	4	1	1968	11.07	274
SA 9277	87	4	2	2588	10.96	88
SA 9145	83	5	1	2696	10.31	86
LIB1484.1	53	3	1	1532	7.33	114
TORNAFIELD	78	2	1	1540	6.54	92
LIB 133.1	59	3	1	899	5.64	336
LIB 51.1	68	3	2	609	3.83	186
SWANI	65	2	1	449	2.05	44
** M.POLYMORPHA						
SERENA	53	4	3	3804	12.55	76
SAD 5341	102	4	1	2237	12.20	196
SA 5550	53	4	2	3720	11.15	64
SAD 2666	55	4	2	2962	9.52	62
SA 8557	64	4	2	3105	9.24	104
SA 4178	54	4	1	2722	8.47	98
SAD 7315	87	4	1	2381	7.89	110
SAD12137	76	4	1	1920	5.67	152
SAD 7299	88	4	1	1124	5.54	425
SANTIAGO	63	4	0	1011	3.21	92
CIRCLE VALLEY	76	2	2	37	0.12	1
** M.SCUTELATA						
SA 5615	66	4	0	1262	20.16	378
SA 2678	54	6	0	418	13.04	262
SA 4332	63	4	1	766	13.00	382
N4361	56	4	0	433	7.67	219
SAVA	70	4	0	502	7.17	165
SA 655	58	2	0	164	6.68	216
SA 1868	73	4	0	504	5.95	151
SAIR	73	4	0	398	5.50	163
** M.RUGOSA						
PARAGOSA	85	3	0	8	0.05	0
PARRAPONTO	73	2	1	0	0.00	0
** LITT * TRUN HYBRID						
Z-111 F6	74	5	1	3280	11.12	136
Z-110 F6	72	6	0	2974	9.91	61
LIB1405.4	66	4	3	4486	9.38	80
** M.TURBINATA						
N3358	111	2	1	506	2.78	136
** M.MUREX						
GRC5661	82	4	1	1066	4.41	122
ZODIAC	0	3	1	0	0.00	0
** T.CHERLI						
LISARE	96	4	1	2372	11.16	62
YAMINA	80	2	0	1854	8.00	220
BENONG	83	3	1	1806	5.66	22
** T.SUBTERRANEUM						
DALKIETH	71	3	2	1159	7.83	116
NUNGARIN	58	4	0	736	4.45	54
GERALDTON	73	3	1	406	2.61	25
NORTHAM	58	4	0	175	0.83	27
** M.DOLIATA						
N3168	85	1	0	120	1.06	176

COMMENTS

The predominant and recommended pasture cultivar for this soil type is c.v. Harbinger. There were a few varieties which showed greater vigour than Harbinger and a large number which had a greater seed yield. Among the higher seed yielding lines were the commercial cultivars: Parrabinger, Parragio and Serena. Much of the advantage these three cultivars had over Harbinger was due to lower damage inflicted by aphids. Parrabinger and Parragio have some aphid tolerance and Serena flowered and set seed before aphids reached very high numbers.

There was little relationship between flowering time and seed yields. This could be due to other factors such as seed size and species affecting the time taken for seed to ripen. Also aphids, which reached very high numbers for only one to two weeks, may have had a larger effect on seed yields of varieties for which this was a critical time in terms of reproduction. Table 2 below indicates the effect of flowering time on potential seed yield. A lower proportion of lines that started to flower in the ninth week after germination managed to achieve a seed yield of over 7g. This may be related to the time when aphids were at there highest numbers which was recorded to be approximately twelve weeks after germination.

TABLE 2

WEEK AFTER GERMINATION THAT FLOWERING COMMENCED	TOTAL NO. OF VARIETIES TESTED	NO. VARIETIES YIELDING OVER 7g SEED/3m ROW
8	23	16
9	32	8
10	37	18
11	49	17
12	34	13
13	14	2
14	4	1
15	1	1
16	6	0

The best lines in terms of seed yield, vigour and aphid tolerance will be further examined in plot trials in 1988.